

**WHAT IS CLAIMED IS:**

1. A device for controlling fluid using surface tension of the fluid, comprising:
  - at least one storage chamber to which a fluid is injected and stored;
  - 5 at least one reaction chamber in which a predetermined reaction is occurred to the fluid;
  - at least one exhaust chamber in which the used fluid is exhausted;
  - at least one connecting channel which connects said storage chamber, reaction chamber, and exhaust chamber so that the fluid is movable;
  - 10 at least one flow delay part which is formed within said connecting channel and delays flow of the fluid by the surface tension of the fluid; and
  - at least one stop valve which is formed within said connecting channel and stops the flow of the fluid by the surface tension,
  - wherein said fluid moves from said storage chamber to said reaction
  - 15 chamber and exhaust chamber by means of the surface tension while exchange of the fluid naturally occurs in said reaction chamber.
2. The device as claimed in claim 1,
  - wherein said at least one storage chamber includes a fluid inlet so that
  - 20 the fluid can be injected
3. The device as claimed in claim 1,
  - wherein said at least one connecting channel adjusts the surface tension by increasing or decreasing a width of the path, or by performing

surface modification or temperature change so that the fluid reliably moves.

4. The device as claimed in claim 1,

5 wherein said at least one stop valve enables adjusts the surface tension by having hydrophilic or hydrophobic property through a channel surface of the valve, deforming the channel geometry, or changing a temperature of the channel surface of the valve.

5. The device as claimed in claim 1,

10 wherein said at least flow delay part adjusts the surface tension by having hydrophilic or hydrophobic property through a channel surface of the valve, deforming the channel geometry, or changing a temperature of the channel surface of the valve.

15 6. The device as claimed in claim 1,

wherein said at least one exhaust chamber includes a structure which keeps the flow of the fluid smooth by increasing the surface tension and makes the preceding portion of the fluid uniform when the fluid flows to prevent fine air bubbles from being occurred.

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7. The device as claimed in claim 1,

wherein said at least one connecting channel includes an isolation threshold to prevent reactants among plurality of said reaction chamber from diffusing.

8. The device as claimed in claim 1,

wherein said at least one reaction chamber has at least one electrode on the wall of the reaction chamber for optical and electrochemical detection.